

WHAT IS CLAIMED IS:

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A1 7 1. A method for removing image artifacts from a representation of an image,
comprising the steps of:

(a) obtaining a pixel representation of the image;

5 (b) classifying each pixel in the image as a screen or non-screen pixel;

(c) examining pixels in a predetermined surrounding area of each pixel
to check the classification of that pixel as determined in step (b); and

(d) selectively applying a low pass filter to pixels in the image, such
that, when the low pass filter is applied, a center of the low pass filter is
selectively shifted relative to a current pixel based on the examining in step
40 (c).

2. The method of claim 1, wherein the classifying step (b) comprises applying a
first mask of a predetermined size centered on the pixel being classified to
determine if the center pixel is in an area having a predetermined periodic pattern.

15 3. The method of claim 2, wherein the first mask is divided into a plurality of
overlapping areas, the center pixel being in each of the first mask areas.

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A1 7 4. The method of claim 1, wherein the examining step (c) comprises applying a
second mask of a predetermined size centered on the pixel being checked.

20 5. The method of claim 4, wherein the second mask is divided into a plurality of
overlapping areas, the center pixel being in each of the second mask areas.

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A1 7 6. The method of claim 2, wherein the predetermined periodic pattern is a
periodic line or dot pattern having a period of 2 or 3.

25 7. The method of claim 5, wherein the selectively applying step (e) comprises
selectively applying the low pass filter based on which of the plurality of second
mask areas contains screen pixels.

8. The method of claim 1, further comprising the steps of:

(f) determining a feature indicator for at least one portion of the image;
and

(g) adaptively sharpening or softening the at least one portion of the
image based on the determined feature indicator.

9. An apparatus for removing image artifacts from a representation of an
image, the apparatus comprising:

a device for obtaining a pixel representation of the image;

a screen pixel identifier, in communication with the device, for
classifying each pixel in the image as a screen or non-screen pixel;

a screen region verifier, in communication with the screen pixel
identifier, for examining pixels in a predetermined surrounding area of each
pixel to check the classification of that pixel as determined by the screen
pixel identifier; and

a low pass filter, in communication with the screen region verifier, that
is selectively applied to pixels in the image, such that, when the low pass
filter is applied, a center of the low pass filter is selectively shifted relative to
a current pixel based on the examining.

10. The apparatus of claim 9, wherein the screen pixel identifier comprises a first
mask of a predetermined size that is applied by centering the first mask on the
pixel being classified to determine if the center pixel is in an area having a
predetermined periodic pattern.

11. The apparatus of claim 10, wherein the first mask is divided into a plurality
of overlapping areas, the center pixel being in each of the first mask areas.

12. The apparatus of claim 9, wherein the screen region verifier comprises a
second mask of a predetermined size that is applied by centering the second mask
on the pixel being checked.

13. The apparatus of claim 12, wherein the second mask is divided into a plurality of overlapping areas, the center pixel being in each of the second mask areas.

5 14. The apparatus of claim 10, wherein the predetermined periodic pattern is a periodic line or dot pattern having a period of 2 or 3.

15. The apparatus of claim 13, wherein the low pass filter is selectively applied based on which of the plurality of second mask areas contains screen pixels.

16. The apparatus of claim 9, further comprising:

10 a frequency classifier that determines a feature indicator for at least one portion of the image; and

an image processor for adaptively sharpening or softening the at least one portion of the image based on the determined feature indicator.

17. A machine-readable medium embodying a program of instructions for causing a machine to perform a method of removing image artifacts from a representation of an image, the program of instructions comprising instructions for:

(a) obtaining a pixel representation of the image;

(b) classifying each pixel in the image as a screen or non-screen pixel;

20 (c) examining pixels in a predetermined surrounding area of each pixel to check the classification of that pixel as determined by the classifying instruction (b); and

(d) selectively applying a low pass filter to pixels in the image, such that, when the low pass filter is applied, a center of the low pass filter is selectively shifted relative to a current pixel based on the result of the examining instruction (c)

25 18. The machine-readable medium of claim 17, wherein the classifying instruction (b) comprises applying a first mask of a predetermined size centered on

the pixel being classified to determine if the center pixel is in an area having a predetermined periodic pattern.

19. The machine-readable medium of claim 18, wherein the first mask is divided into a plurality of overlapping areas, the center pixel being in each of the first mask areas.

20. The machine-readable medium of claim 17, wherein the examining instruction (c) comprises applying a second mask of a predetermined size centered on the pixel being checked.

21. The machine-readable medium of claim 20, wherein the second mask is divided into a plurality of overlapping areas, the center pixel being in each of the second mask areas.

22. The machine-readable medium of claim 18, wherein the predetermined periodic pattern is a periodic line or dot pattern having a period of 2 or 3.

23. The machine-readable medium of claim 21, wherein the selectively applying instruction (e) comprises selectively applying the low pass filter based on which of the plurality of second mask areas contains screen pixels.

24. The machine-readable medium of claim 17, further comprising instructions for:

(f) determining a feature indicator for at least one portion of the image;

and

(g) adaptively sharpening or softening the at least one portion of the image based on the determined feature indicator.